THE GENUS TRUKIA KANEHIRA (RUBIACEAE)

F. R. Fosberg
Smithsonian Institution
Washington, D.C. 20560, USA

This genus was set up by Kanehira in 1934 to accommodate a large shrub (or small tree) that he had found on Truk in 1931. The genus was considered monospecific and endemic in the Truk group, a small group of volcanic islands surrounded by a great atoll-like coral reef, in the central Caroline Islands, Micronesia.

Kanehira described his species first in 1932, as Timonius megacarpus Kaneh., then, the same year, transferred it to Rhopalobrachium Schlechter & Krause, a New Caledonian genus, with a single ovule in each of two ovary locules. Then, in 1935, Kanehira discovered that the fruit of his plant has many seeds, rather than one in a cell, and described the genus Trukia for it. Later, in 1936, he found that Valeton had described the same species in 1930, as Randia carolinensis, based on a Kraemer specimen, collected in 1910, also from Truk. Kanehira and Hatusima then, in 1937, transferred Valeton's species to Trukia.

However, it fit readily in Randia, then accepted as having a very broad circumscription, and it has since been generally referred to as Randia carolinensis Valeton.

In 1968 I studied the type material of Randia tahitensis Nadeaud, in Paris, and noted that it seemed related to R. carolinensis.

Since then, Dr. Deva D. Tirvengadum has undertaken a study of the Rubiaceae-Gardeniae of South Asia and Ceylon, most of which were then regarded as belonging to Randia. This study was started when he was a Smithsonian Fellow, in 1974-75, and has continued since. He has concluded that Randia included a great diversity of elements, and has gone a long way in dismembering it.

While not being ready to accept completely this segregation, I can maintain, at least, such genera as Aidia, Rothmannia, and probably Porterandia, as distinct from Randia, pending an overall conspectus of the Gardenia tribe, which Tirvengadum will hopefully have ready soon.

Randia carolinensis and Randia tahitensis are representative of a small alliance of species, in southeast Asia and the Pacific,

mostly not well-known, and very poorly represented in herbaria immediately accessible to me, that is no closer to Randia L. sensu stricto than the three above-mentioned genera. Among these species may be mentioned Randia dryadum (S. Moore) Merr. & Perry, from New Guinea to the Solomon Islands, R. macarthurii F. Muell. from New Guinea, R. fitzalanii F. Muell. ex Benth. from Australia, R. macromera Lauterb. & Schum., from New Guinea, and R. candolleana W. & A. from India.

These five species, and probably others of which we have no material, have in common, spinelessness, large elliptic to obovate petiolate leaves, relatively few-flowered, sometimes condensed cymes, flowers pedicellate, with cup-shaped calyx, corolla with relatively short tube and limb in bud tapering from a thick base to a sharp point, entire or with 5 free tips; stigma of 2 thick elliptic coherent lobes, tardily separating; fruit large subglobose, surface scurfy, seeds many, irregularly compressed, embedded in pulpy placentae filling the 2 cells.

We do not find a generic name that applies to this alliance, or to any member of it, except Trukia Kanehira. Since we need names for the Polynesian and Micronesian species, we will maintain Trukia for our species and their immediate allies, at least until Randia is better understood on a pan-tropical basis. Its type species is Timonius megacarpus Kanehira (= Trukia carolinensis (Valeton) Kanehira and Hatusima.

Trukia Kanehira, Bot. Mag. (Tokyo) 49: 278-279, 1935.

Randia pro min. parte, non L., Gen. Pl. 1753: Sp. Pl. 1192, 1753.

Small trees or large shrubs, unarmed, diffusely branched; leaves opposite, petiolate, coriaceous or subcoriaceous or membranous(?), elliptic, oblong, or obovate; stipules ovate to lanceolate, subpersistent; inflorescence fasciculate to cymose, axillary or at terminal node and becoming axillary; flowers pedicellate, calyx cup-shaped; corolla salverform, tube short, enlarged upward, limb tapering and pointed in bud, lobes 5, spreading or reflexed; anthers oblong, dorsifixed near base of corolla throat; style slender, stigma fusiform, of 2 coherent tardily separating lobes, ovary bilocular, ovules many; fruit subglobose, 2-3 cm or more diameter, becoming scurfy on drying, locules filled with fleshy placenta; seeds 8-10 or more in a locule, embedded in placenta, irregularly compressed.

A small, poorly known genus, a segregate from Randia, perhaps closest to Rothmannia, extending from India to Thailand and Australia, eastward in the Pacific to Truk and Tahiti.

Trukia carolinensis (Valeton) Kanehira & Hatusima. Bot. Mag. (Tokyo) 50: 606, 1936; Hosokawa, Bull. Biogeogr. Soc. Japan 7: 20, 1937.

Randia carolinensis Valeton, Bot. Jahrb. 63: 301-302, 1930; Kanehira, Enum. Micr. Pl. 424, 1935; Fosberg, Occ. Pap. Bishop Mus. 15: 216, 1940; Fosberg, Sachet & Oliver, Micronesica 15: 277, 1979.

Timonius megacarpus Kanehira, Bot. Mag. (Tokyo) 46: 494, 1932.

Rhopalobrachium megacarpum [sic] (Kanehira) Kanehira, Bot. Mag. (Tokyo) 46: 624, 1932; Fl. Micr. 377-78, fig. 201, 1933.

Trukia megacarpa (Kanehira) Kanehira, Bot. Mag. (Tokyo) 49: 279, 1935; Enum. Micr. Pl. 426, 1935.

Shrub or small tree, to 10 m tall, vegetative parts glabrous or sub-glabrous, stems gray, squarish but not sharply angled; leaves obovate to elliptic, to 30 x 14 cm, usually much smaller, shortly and bluntly acuminate at apex, base cuneate, veins 9-10 (-12) on a side, network not prominent, petiole rather stout, 1-2 cm long; stipules ovate-lanceolate, acute to acuminate, dorsally carinate, shortly connate at base; inflorescence a once or twice dichotomous cyme, variously reduced to sub-fasciculate, axillary or more rarely at terminal node and becoming axillary, branches somewhat scorpioid or sub-helicoid, flowers very few on a branch at any one time, pedicellate, pedicels 5 (-10) mm long, jointed to very short "branchlets" (actually short successive axes), subtended by ovate scale-like bracts in pairs, whole cyme glabrous; hypanthium and calyx turbinate-cup-shaped, truncate or margin obscurely obtusely dentate; corolla white with short swollen tube to 7 mm long, densely white sericeous-strigose, "tubus intus dense hirsutus pilis erectis", lobes to 1 cm long, broadly lanceolate, slightly hastulate at base, glabrous, in bud tapering, very slightly contorted and overlapping to left; anthers narrowly oblong, apiculate, dorsifixed at base of throat; style glabrous, stigma fusiform, obtuse, of 2 coherent tardily separating halves; fruit globose, to about 4 cm diam., lepidote externally, and somewhat rugose when dry, mesocarp very thin, endocarp thin but hard, indurated, circular scar of calyx 10 mm broad surrounding disk 6 mm broad, septum very thin, breaking away from endocarp; seeds compressed, hard, 16-20 embedded in the loosened placental mass.

Specimens examined:

CAROLINE ISLANDS: Yap: Mt. Matade, 160 m, Fosberg 25533 (US, BISH). Truk: Moen: Mt. Trokken, Hosokawa 8405 (BISH, A, US); slopes and main ridge of Mt. Teroken, Fosberg 24610 (US, BISH, POM, NY, L); on slope back of Moen village, 5 m, Anderson 767 (US, BISH, POM, NY, L), 788 (US, BISH, POM, NY, L), Mwan, 150-200 m, Falanruw 3506 (US); Spence 443 (BISH); E ridge of Mt. Winipwen, Fosberg 60249 (US, BISH, POM, NY, L); Wichen River, Stemmermann 3053 (BISH). Dublon: Natsushima (Dublon), Takamatsu 69 (BISH),

83 (BISH), 158 (BISH), 155 (BISH); 800 ft [245 m], Hosaka 2766 (US, BISH, POM, NY, L); upper ridge & top of Mt. Tolomen, 200-360 m, Fosberg 24552 (US, BISH, POM, NY, L), 24540 (US, BISH, POM); Toloas, Pelzer 42 (US, BISH, POM, NY, L); "Auf dem Rücken Ils." (or "Ruken des Tolowan" or Tolomen), Hallier (HBG, 2 sheets, US). Tol: Takamatsu 38 (BISH); 300-400 m, Kanehira 1275 (BISH, US, NY, P); Uriribot, Hosokawa 8279 (BISH, A, US); Pelzer 30 (US, BISH); Mt. Winipwoot, 1400 ft [425 m], Wong 266 (A, US, BISH); Mt. Tumuital (Uiniboet), 200-460 m, Fosberg 24470 (US, BISH, POM, NY, L), 24469 (US, BISH, POM, NY, L). Udot: Monowe, hill back of village, Fosberg 60242 (US, BISH, POM, NY, L). Fefan: Mt. Ibal, Hosokawa 8368 (BISH, A); Messa village, 100-200 m, Falanruw 3528 (US).

Trukia tahitensis (Nadeaud) Fosberg, new comb.

Randia tahitensis Nadeaud, Enum, Pl. Tahiti 54, 1873; Drake, Ill. Fl. Ins. Mar. Pac. 83-84, 191, T. 42, 1889, 1892; Fl. Polynes. Fr. 90, 1892, 1893.

Tree 10-12 m tall, branchlets glabrous, wood hard; leaves glabrous, elliptic or narrowly obovate to 14 x 5 cm, apex slightly acuminate, veins about 8 on a side, petiole about 1 cm; stipules ovate, shortly appressed hispid, connate at base, caducous; flowers on long pedicels, several from condensed dwarf axillary branchlets about 5 mm long; pedicels filiform, to 28 mm long, thickened at apex, passing into hypanthium; calyx campanulate, truncate, puberulent; corolla in bud swollen at base, tube urceolate, about 6 mm long, limb tapering to about 20 mm long, 5 free tips unequal, tube externally appressed pilose, 5 lobes elongate, oblong-acute, strongly recurved; anthers elongate, sessile in corolla tube; stigma "conic" (in Drake's illustration of 2 separate thick elliptic lobes) subglobose, 22 x 20 mm, septum "evanidis", resulting in a unicellular fruit filled with large irregularly compressed seeds 5-10 mm across. (Description from syntype collection, amplified from original description). Drake's Tab. 42 is an excellent illustration with analyses.

Closely allied to Trukia carolinensis, differing in details. Found by Nadeaud on high ridges in Tahiti.

In a manuscript account of his visit in 1896, Nadeaud mentions recollecting this species April 5, "sur les cretes de droite de pirae á 1100 m, á Puairi". I have not seen this collection.

A sterile specimen collected in Orofero Valley, Fosberg 63730, is probably this species, but the young growth is sparsely appressed pubescent, leaves are membranous and the stipules acuminate. John W. Moore collected it on Raiatea in 1927. There are remarkably few collections, possibly because it is very ordinary-looking, inconspicuous plant when not in flower or fruit.

From the 2 Raiatea collections we may add to the above description that the leaves may be thin-chartaceous, up to 16.5 x 8 cm; flowers white (not present in Bishop Museum sheets); fruit larger, up to 50 x 32 mm, broadly oval, slightly pointed, wall perhaps thinner than in T. carolinensis.

Specimens examined:

SOCIETY ISLANDS: Tahiti: Tapuna, above Pirae (ridge to Aorai, Nadeaud 359 (P, syntype, 7 sheets, flowering sheet designated by me as lectotype, as it best represents the species). Raiatea: on ridge N end of highest mountain, J. W. Moore 714 (BISH); on ridge of mountain N of Faaroa Bay, 400 m, J. W. Moore 554 (BISH).

Transfers are made for three species that clearly are this affinity, though I have not had available specimens or information sufficient for a proper comparative study. Of others which may belong here I have not had sufficient material even to justify transfers.

Trukia dryadum (S. Moore) Fosberg, new comb.

Gardenia dryadum S. Moore, Journ. Bot. 65: 247, 1927.
Randia dryadum (S. Moore) Merr. & Perry, Journ. Arn. Arb. 25: 201, 1944.

This species differs only in detail from T. carolinensis. The leaves and fruits are significantly larger, the pedicels longer and more slender.

Known from New Guinea, New Britain and from the Solomon Islands.

Specimens examined:

NEW GUINEA: Papua: Milne Bay Dist.; Goodenough Island, 150 m, Brass 25124 (US); Menapi, Cape Vogel Pen., 80 m, Brass 21964 (US). NEW BRITAIN: Otto Island, 25 mi WNW of Fulleborn Harbour, Isles and Croft 32223(US); Neco Gengia, Tetemara, L. Maenu'u (BSIP) 6105 (US). SOLOMON ISLANDS: Santa Ysabel: Binusa, Beer's collection, (BSIP) 6603 (US).

Trukia fitzalanii (F. Muell.) Fosberg, new comb.

Gardenia fitzalanii F. Muell., Rept. Burdk. Exp. 12, 1860.
Randia fitzalanii F. Muell. ex Benth., Fl. Australia 3: 411, 1867.

Inflorescences very large and open. Cultivated material, only, seen. Native of Australia.

Specimen examined:

Honolulu: H. L. Lyon Arboretum, Ishikawa 72 (US); Bogor, Hort. Bogor., s. coll. (US).

Trukia macarthurii (F. Muell.) Fosberg, new comb.

Randia macarthurii F. Muell., Notes Papuan Pl. 1: 68, 1876.

A species with large flowers, with linear corolla lobes, that probably belongs here.

Known from New Guinea and neighboring islands.

Specimen examined:

ARU ISLANDS: Lutor, Beccari in 1873 (US).